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A PARASITIC SPECIES OF CLAUDOPUS

Harry Morton Fitzpatrick

(With Plate 153, and 1 Text Figure)

Several of the *Agaricaceae* have been described as parasitic on others of the same group. Of these may be mentioned *Volvaria Loveiana on Clitocybe nebularis,*[1] *Stropharia coprinophila* on *Coprinus atramentarius,*[2] and the species of the genus *Nyctalis.* No instance of a species of the *Agaricaceae* parasitic on one of the *Polyporaceae* appears, however, to have been cited. On August 2, 1914, the writer discovered such a case in Six Mile Gorge, near Ithaca, N. Y. *Polyporus perennis*[3] occurs in this locality in unusual abundance and a few fruit bodies of this fungus were found parasitized a member of the genus *Claudopus.* Study has proved this to be a hitherto undescribed species.

The fruit bodies of the parasite occur in considerable numbers about the mouths of the tubes and along the stipe of the *Polyporus.* They are minute, the expanded pilei in no case exceeding 4 mm. in diameter, while the developmental stages or " buttons " are almost microscopic. The lateral stipe and the salmon-colored gills suggest at once the genus *Claudopus.*

The parasitized host plants, if examined superficially, give little evidence of the presence of the parasite. They exhibit the normal appearance of healthy plants, showing neither hypertrophy nor dwarfing, and viewed from above can in no way be distinguished from the uninfected sporophores. An examination with the hand lens reveals the fact that certain of the tubes of the *Polyporus* in the immediate vicinity of the fruit bodies of the parasite are partially filled with the grayish mycelium of the *Claudopus.* There is no other external evidence of a diseased condition, and the sporophores of the *Polyporus* produce their hymenium and spores in the normal manner. Thin sections made through the point of attachment of the stipe of the parasite to the host disclose no marked derangement of the elements of the latter. It is possible to trace to some extent the course of the hyaline hyphae of the *Claudopus* among the deeper-colored threads making up the sporophore of the *Polyporus*. Some of these are found ramifying the trama of the host to a considerable depth. It is possible that they extend through its stipe to the soil. The presence of fruit bodies of the parasite on the stipe furnishes some indication of this.

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[1] Berkeley, J. M. Outlines of British Fungology, *pl. 7, f. 2.* 1860.

[2] Atkinson, G. F. A mushroom parasitic on another mushroom. The Plant World 10: 121–130. *f. 22–24.* 1907.

[3] *Polyporus perennis* Fr. = *Coltricia perennis* (L.) Murrill. North American Flora 9: 92. 1908.

The mycelium of the parasite is relatively small in amount, and the hyphae of the two fungi lie in close contact and run approximately parallel. Careful search fails to reveal any organs of the nature of haustoria, and dissolution of the host hyphae by enzymes excreted by the parasite appears not to take place. If any such process occurs, the disintegration of the host is insufficient in amount to be evident in thin, free-hand sections.

The method by which natural infection occurs was not determined. Fruit bodies of the *Claudopus* leading a saprophytic existence on neighboring twigs or soil could not be found. It is not impossible, however, that these were produced earlier and had already disappeared. Local infection of the sporophores of the *Polyporus* might result either from spores produced on such saprophytic fruit bodies or from hibernated spores produced the preceding year on parasitic fruit bodies. It seems more probable, however, that the vegetative mycelium of the *Claudopus* spreads in the soil and travels upward among the hyphae of the *Polyporus* during the development of its sporophore. It may thus retain organic connection with the food material in the soil and be partially or wholly independent of the *Polyporus* in its food relationships.

The upper figure in the accompanying plate illustrates well the fruit bodies of the two fungi. A compound structure resulting from the fusion of the pilei of three sporophores of the host plant is shown. The blur at the center of the photograph results from the failure of the stipe of the sporophore to fall into focus. The tendency of the sporophores of *Polyporus perennis* to fuse at the margins with neighboring fruit bodies is more or less characteristic of the species. It was evident in many of the plants collected, has been described before, and is not to be regarded as due to the presence of the parasite. Nearly one hundred fruit bodies of the *Claudopus*, the majority of them in the " button " stage, may be counted on the single sporophore pictured. They are shown enlarged to approximately two diameters. The lower figure in the plate illustrates the parasite in somewhat more detail, the enlargement here being nearly four diameters.

The fungus must be regarded as a member of the genus *Claudopus*. The stipe is definitely lateral. The spores, salmon-colored in mass, when viewed under the microscope exhibit a distinct pink tint. However, no previously described species of the genus posesses the characters of the fungus on *Polyporus perennis*. No described species of *Pleurotus* or *Crepidotus* resembles it even remotely. The pileus is white, the lamellae are salmon-colored in even the young fruit bodies, and the spores are definitely angular (see text figure 1). Few species of the genus have been described as having angular spores. Only one of these, *Claudopus depluens* Batsch, has a white pileus, and it is described as being sometimes tinged with pink or gray. The minimum measurement (one-half inch) given as the diameter of the pileus of *C. depluens* is three times greater than the maximum of the species under consideration, while average pilei of *C. depluens* are much larger. The fruit bodies of *C. depluens* occur on the ground or on decaying wood, and arise from saprophytic mycelium. The lamellae are at first white, later becoming salmon-colored. The species has been collected in New York and was described by

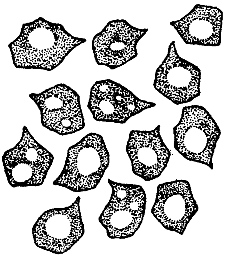
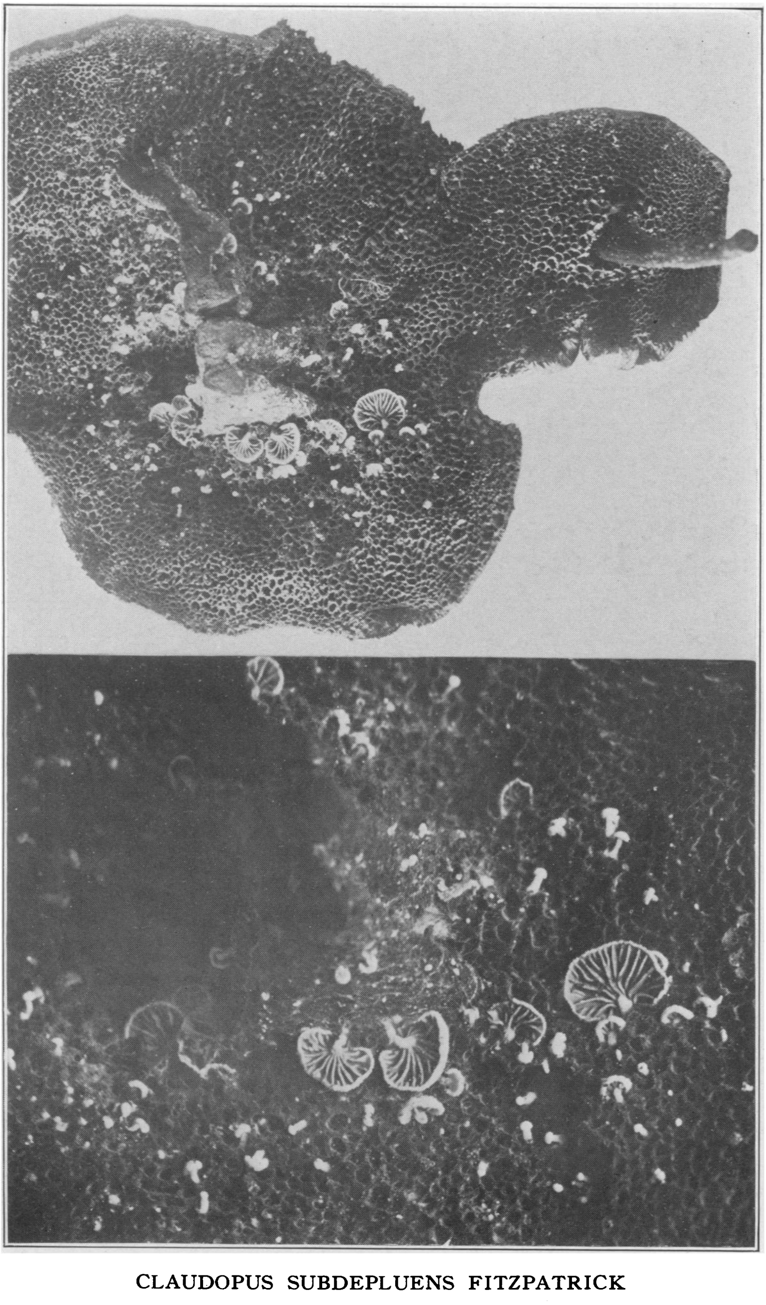


FIG. 1. Spores of *Claudopus subdepluens* Fitzpatrick.



CLAUDOPUS SUBDEPLUENS FITZPATRICK

Peck.[4] The spores of the two species are approximately the same size, and are both typically uniguttulate. The fungus on *Polyporus perennis* is evidently closely related to *C. depluens*. It cannot, however, if the differences enumerated are taken into consideration, be regarded as identical with it, and the following name is proposed:

Claudopus subdepluens sp. nov.

Pileo e convexo expanso, minuto, 1–4 mm. maximam diam., albo, minute tomentoso, margine sulcato; lamellis ex primo salmoniis, distantibus, adnatis, acie integerrima; stipite albo, laterali, flexuoso, adusque 2 mm. longitudinem, crassitudine minore quam 0.5 mm.; basidiis 4 sterigmatibus praeditis, clavatis; sporis angulosis, 1-guttulatis (raro 2-plus-guttulatis), parum atqui definite roseis, 7–12 × 6–8 μ.

Hab. parasiticus in Polyporo perenne, Six Mile Gorge, Ithaca, N. Y. Amer. bor.

DEPARTMENT OF PLANT PATHOLOGY,
CORNELL UNIVERSITY,
ITHACA, N. Y.

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[4] Peck, Chas. New York species of *Pleurotus, Claudopus,* and *Crepidotus.* Ann. Rep. N. Y. State Mus. 39: 68. 1887.